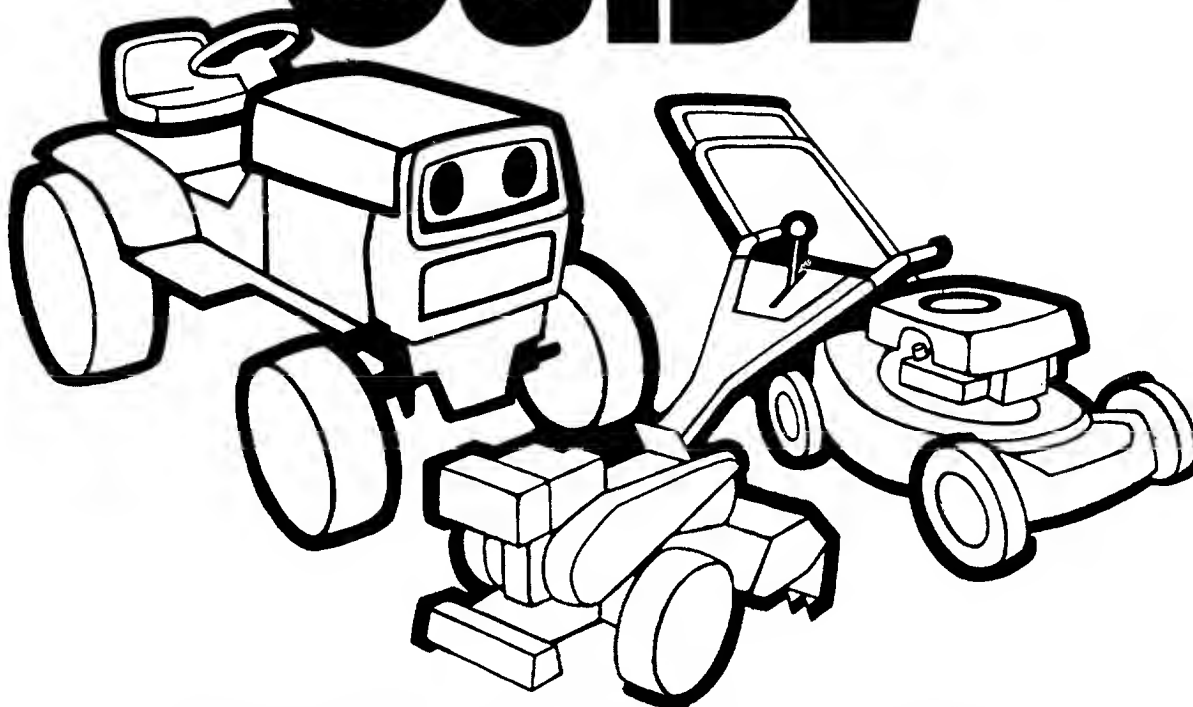


# OWNER'S GUIDE



**21" REAR  
DISCHARGE  
ROTARY  
MOWERS**

**Model Numbers  
117-311-000  
117-312-000**

**IMPORTANT: Read Safety Rules and Instructions Carefully**

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*Dear Customer,*

*So often throughout the year we are all in a rush to meet our daily obligations.*

*However, we at MTD Products Inc are taking a quick moment out to say...*

**"Thank you for your business."**

*Sincerely,*  
MTD PRODUCTS INC



**INSTRUCTIONS GIVEN WITH THIS SYMBOL ARE FOR PERSONAL SAFETY. BE SURE TO FOLLOW THEM.**

## LIMITED WARRANTY

For one year from the date of original retail purchase, MTD PRODUCTS INC will either repair or replace, at its option, free of charge, F.O.B. factory or authorized service firm, any part or parts found to be defective in material or workmanship. Transportation charges for the movement of any power equipment unit or attachment are the responsibility of the purchaser. Transportation charges for any parts submitted for replacement under this warranty must be paid by the purchaser unless such return is requested by MTD PRODUCTS INC.

This warranty will not apply to any part which has become inoperative due to misuse, excessive use, accident, neglect, improper maintenance, alterations, or unless the unit has been operated and maintained in accordance with the instructions furnished. This warranty does not apply to the engine, motor, battery, battery charger or component parts thereof. Please refer to the applicable manufacturer's warranty on these items.

This warranty will not apply where the unit has been used commercially.

Warranty service is available through your local authorized service dealer or distributor. If you do not know the dealer or distributor in your area, please write to the Customer Service Department of MTD.

The return of a complete unit will not be accepted by the factory unless prior written permission has been extended by MTD.

This warranty gives you specific legal rights. You may also have other rights which vary from state to state.

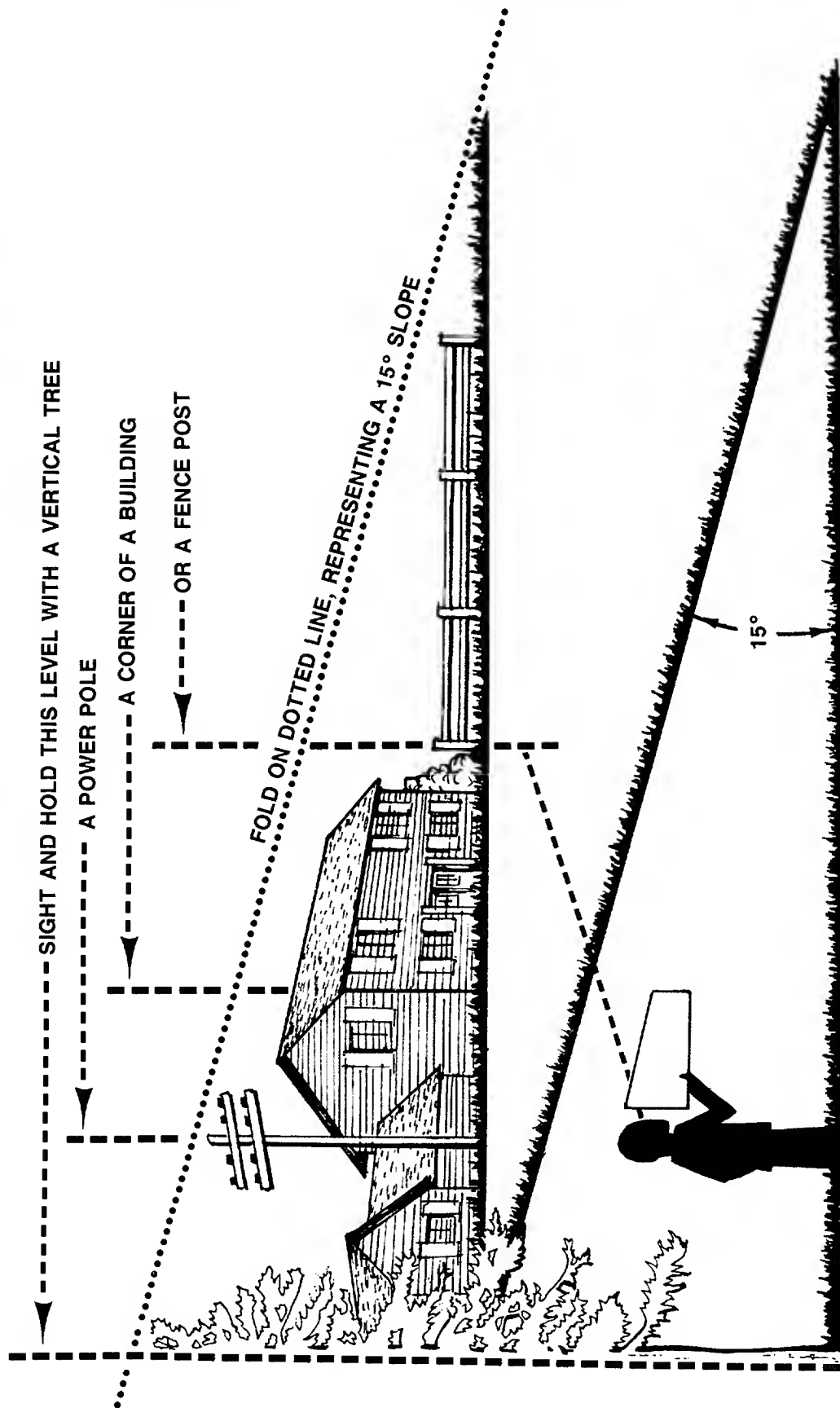
**WARNING:** This unit is equipped with an internal combustion engine and should not be used on or near any unimproved forest-covered, brush-covered or grass-covered land unless the engine's exhaust system is equipped with a spark arrester meeting applicable local or state laws (if any). If a spark arrester is used, it should be maintained in effective working order by the operator.

In the State of California the above is required by law (Section 4442 of the California Public Resources Code). Other states may have similar laws. Federal laws apply on federal lands. A spark arrester muffler is available at your nearest engine authorized service center.

USE THIS SHEET AS A GUIDE TO DETERMINE SLOPES WHERE YOU MAY NOT OPERATE SAFELY.

# SLOPE GAUGE

(Keep this sheet in a safe place for future reference.)



Do not mow on inclines with a slope in excess of 15 degrees (a rise of approximately 2½ feet every 10 feet). A riding mower could overturn and cause serious injury. If operating a walk-behind mower on such a slope, it is extremely difficult to maintain your footing and you could slip, resulting in serious injury.

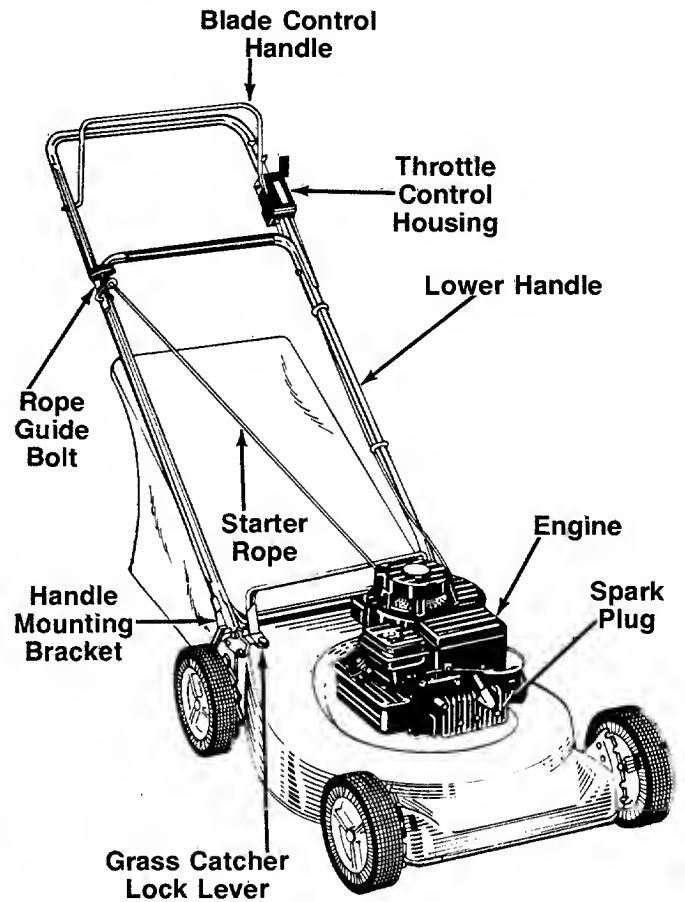
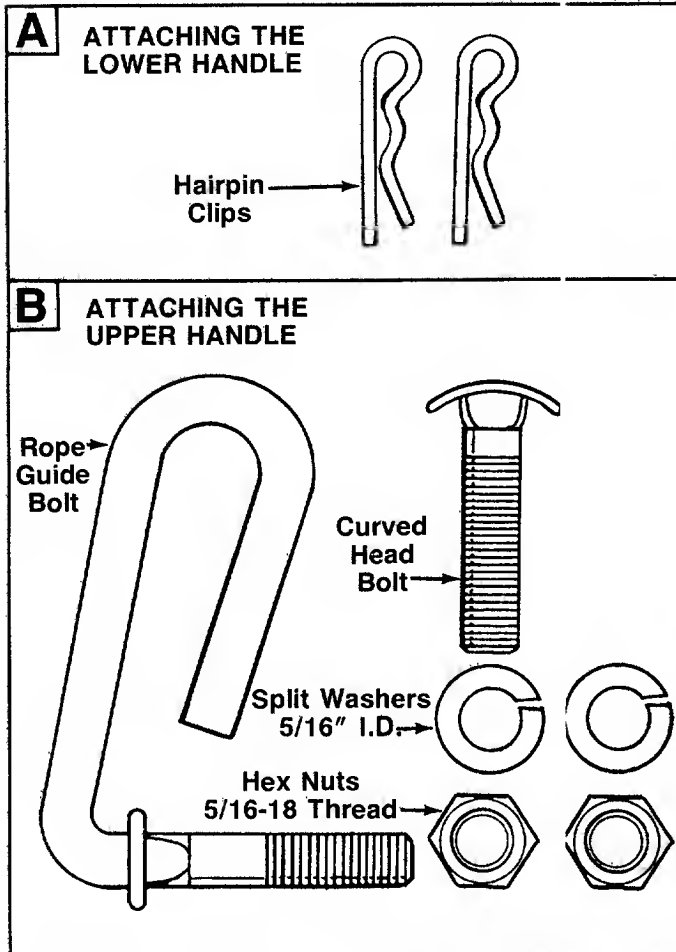
Operate RIDING mowers up and down slopes, never across the face of slopes.

Operate WALK-BEHIND mowers across the face of slopes, never up and down slopes.

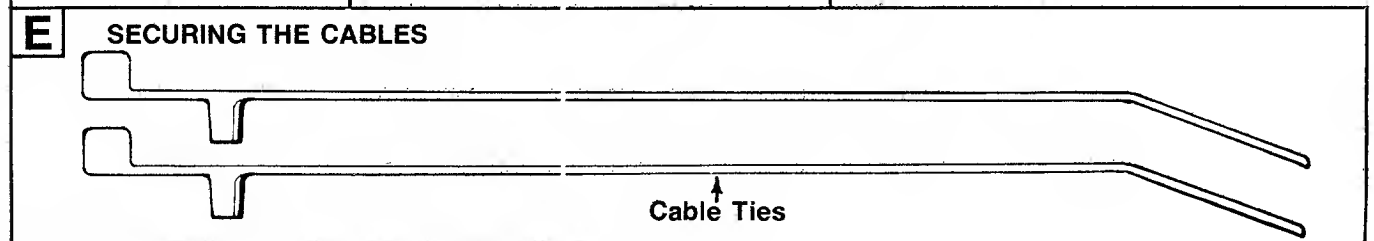
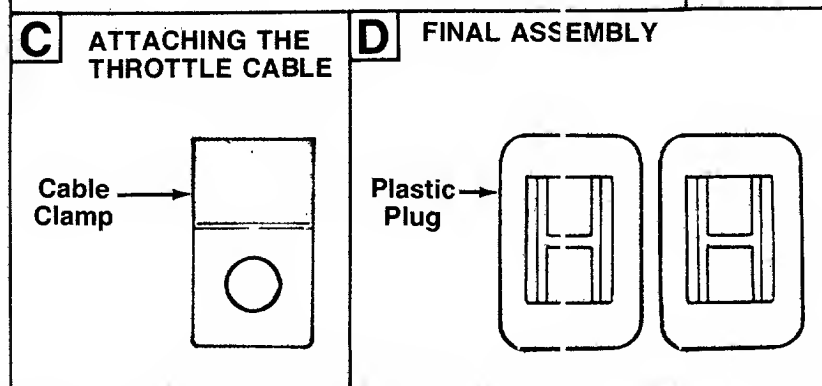
# CONTENTS OF HARDWARE PACK/PARTS IDENTIFICATION

Remove this sheet from your owner's manual and lay the hardware on the illustration for identification purposes. After assembly, keep the Slope Gauge which is on the reverse side of this sheet for future use.

(Hardware pack may contain extra items which are not used on your unit.)



PARTS IDENTIFICATION



# IMPORTANT

## RULES FOR SAFE OPERATION



THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH, IF NOT FOLLOWED, COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE YOUR LAWN MOWER. FAILURE TO COMPLY WITH THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY. WHEN YOU SEE THIS SYMBOL—



**HEED ITS WARNING.**



### DANGER

**Your lawn mower was built to be operated according to the rules for safe operation in this manual. As with any type of power equipment, carelessness or error on the part of the operator can result in serious injury. If you violate any of these rules, you may cause serious injury to yourself or others.**



### TRAINING

1. Read this owner's manual carefully in its entirety before attempting to assemble or operate this machine. Be completely familiar with the controls and the proper use of this machine before operating it. Keep this manual in a safe place for future and regular reference and for ordering replacement parts.
2. Your rotary mower is a precision piece of power equipment, not a plaything. Therefore, exercise extreme caution at all times.
3. Never allow children to operate a power mower. Only persons well acquainted with these rules of safe operation should be allowed to use your mower.
4. Keep the area of operation clear of all persons, particularly small children and pets. Stop engine when they are in the vicinity of your mower to help prevent blade contact or thrown object injury. Although the area of operation should be completely cleared of foreign objects, an object may have been overlooked and could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area.



### PREPARATION

1. Thoroughly inspect the area where the equipment is to be used. Remove all stones, sticks, wire, bones and other foreign objects which could be picked up and thrown by the mower in any direction and cause serious personal injury to the operator or any others allowed in the area.
2. Always wear safety glasses or eye shields during operation or while performing an adjustment or repair, to protect eyes from foreign objects that may be thrown from the machine in any direction.
3. Wear sturdy, rough-soled work shoes and close-fitting slacks and shirts to avoid entanglement in the moving parts. Never operate a unit in bare feet, sandals, or sneakers.
4. Check the fuel before starting the engine. Gasoline is an extremely flammable fuel. Do not fill the gasoline tank indoors, while the engine is running, or until engine has been allowed to cool for two minutes after running. Replace gasoline cap securely and wipe off any spilled gasoline before starting the engine as it may cause a fire or explosion.
5. Disengage the self-propelled mechanism or drive clutch on units so equipped before starting the engine.
6. The blade control handle is a safety device. Never attempt to bypass its operation. Doing so makes the safety device inoperative and may result in personal injury through contact with the rotating blade. The blade control handle must operate easily in both directions.
7. Never attempt to make a wheel or cutting height adjustment while the engine is running.
8. Never operate the equipment in wet grass. Always be sure of your footing. A slip and fall can cause serious personal injury. Keep a firm hold on the handle and walk, never run. Mow only in daylight or in good artificial light.



### OPERATION

9. For your safety, use the slope gauge included as part of this manual to measure slopes before operating this unit on a sloped or hilly area. If the slope is greater than 15° as shown on the slope gauge, do not operate this unit on that area or serious injury could result.
1. Do not change the engine governor settings or overspeed the engine. Excessive engine speeds are dangerous.
2. Do not put hands or feet near or under rotating parts. Keep clear of the discharge opening at all times as the rotating blade can cause injury.
3. Stop the blade when crossing gravel drives, walks or roads.
4. After striking a foreign object, stop the engine, remove the wire from the spark plug, and thoroughly inspect the mower for any damage. Repair the damage before restarting and operating the mower.
5. If the equipment should start to vibrate abnormally, stop the engine and check immediately for the cause. Vibration is generally a warning of trouble.
6. Shut the engine off and wait until the blade comes to a complete stop before removing the grass catcher or unclogging the chute. The cutting blade continues to rotate for a few seconds after the engine is shut off. Never place any part of the body in the blade area until you are sure the blade has stopped rotating.
7. Before cleaning, repairing or inspecting, make certain the blade and all moving parts have stopped. Disconnect the spark plug wire, and keep the wire away from the spark plug to prevent accidental starting.
8. Do not run the engine indoors.
9. Mow across the face of slopes, never up-and-down. Exercise extreme caution when changing direction on slopes. Do not mow excessively steep slopes. Always be sure of your footing. A slip and fall can cause serious personal injury.
10. Never operate mower without proper guards, plates or other safety protective devices in place.
11. Do not operate this mower with the chute door open, unless the complete grass catcher is properly mounted on the mower.



### MAINTENANCE AND STORAGE

1. Check the blade and engine mounting bolts at frequent intervals for proper tightness.
2. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
3. Never store the equipment with gasoline in the tank inside of a building where fumes may reach an open flame or spark. Allow the engine to cool before storing in any enclosure.
4. To reduce fire hazard, keep the engine free of grass, leaves, or excessive grease.
5. Check the grass catcher bag frequently for wear or deterioration. For safety protection, replace only with new bag meeting original equipment specifications.

➡ **IMPORTANT:** This unit is shipped **WITHOUT GASOLINE** or **OIL**. After assembly, service engine with gasoline and oil as instructed in the separate engine manual packed with your unit.

➡ **NOTE:** Reference to right or left hand side of the mower is observed from the operating position. Refer to parts identification on page for location of parts when assembling the mower.

## ASSEMBLY INSTRUCTIONS

### Tools Required for Assembly

- (1) Phillips Head Screwdriver
- (1) 1/2" Wrench\*
- (1) 5/16" Wrench or Nutdriver\*
- (1) 7/16" Wrench\*
- \*Or one 6" Adjustable Wrench.

### UNPACKING

1. Remove the lawn mower from the carton by opening the top flaps and lifting the unit out. Be careful of the staples. Make certain all parts and literature have been removed from the carton before the carton is discarded.
2. Disconnect and ground the spark plug wire against the engine. Check beneath the deck for any cardboard packaging. Remove if present.
3. Stretch out all control cables and place on the floor. Be careful not to bend or kink the cables at any time during assembly.
4. Remove page four from this manual and lay the contents of the hardware pack on the illustration for identification.

### ATTACHING THE LOWER HANDLE (Hardware A)

Attach the lower handle by placing the bottom holes in the lower handle over the weld pins on the handle mounting brackets on the rear of the deck. Make certain the instruction label on the lower handle can be read from the operating position. Secure with hairpin clips in **inner** holes on weld pins. See figure 1.

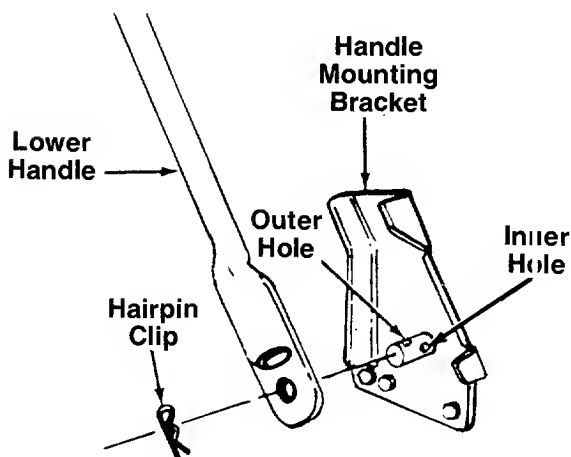


FIGURE 1.

### ➡ NOTE

There are two (2) holes in the handle mounting brackets. Place the hairpin clip in the inner hole for operation. Outer hole is for storage.

### ➡ NOTE

It may be necessary to bend the ends of the lower handle inward slightly to obtain a tight fit against the handle mount brackets.

### ATTACHING THE UPPER HANDLE (Hardware B)

1. Place the upper handle in position over the lower handle. **The label on the throttle control housing and the control lever must be facing up.**

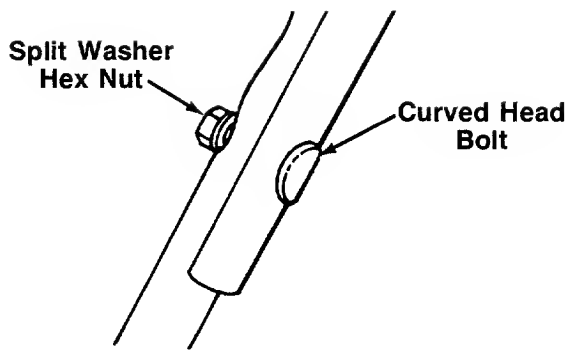


FIGURE 2.

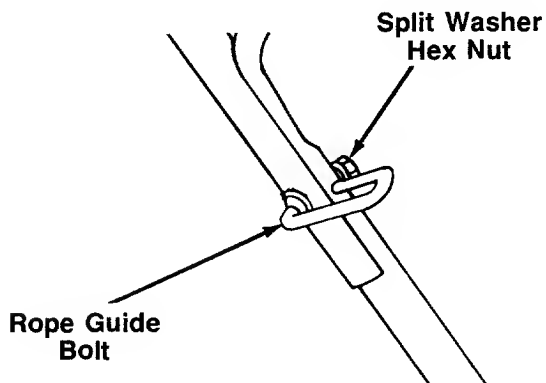


FIGURE 3.

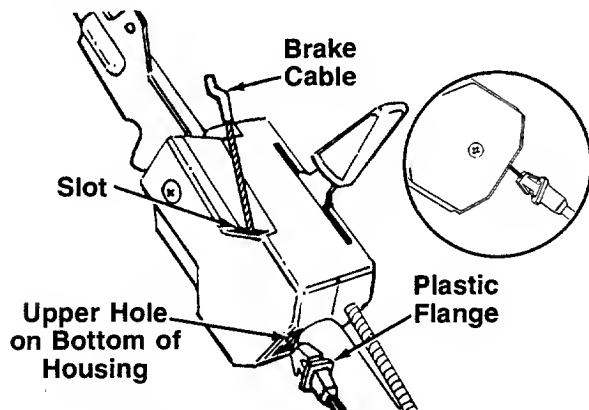


FIGURE 4.—Model 312 Shown

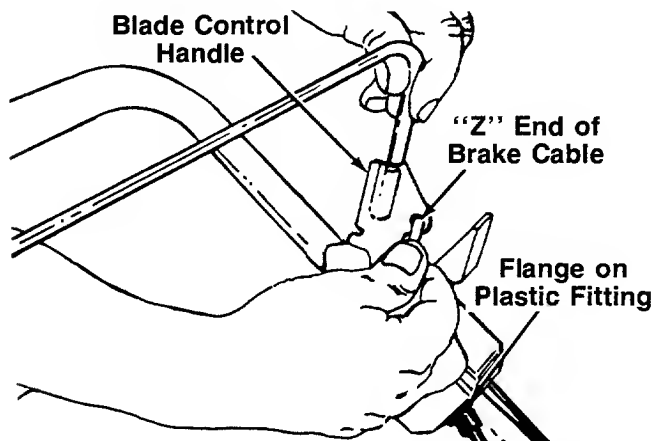


FIGURE 5.—Model 312 Shown

## NOTE

The right hand side of the handle will be secured with the rope guide bolt. However, left handed operators may assemble the rope guide bolt to the left side of the handle for easier starting by following steps 2 and 3 and reversing the left and right hand instructions.

← 2. Secure the left hand side of upper handle using the curved head bolt, split washer and hex nut as shown in figure 2.

← 3. Insert the rope guide bolt through the right hand side of upper and lower handle. See figure 3. Secure with split washer and hex nut, finger tight only.

## ATTACHING THE BRAKE CABLE

1. The brake cable is attached to the engine, and has a "Z" fitting on the loose end. Route the brake cable below the lower handle. Place end of cable into the upper hole on the bottom of the control housing, and through the slot as shown. The angle of the plastic flange must be positioned downward as shown in figure 4. Be careful not to bend or kink the cable at any time.
- ← 2. Push the plastic fitting until it locks into the control housing.



Brake cable must be assembled as shown for proper blade brake operation.

- ← 3. Hook the "Z" end of the brake cable into the hole in the blade control handle from the inside to the outside as shown in figure 5.

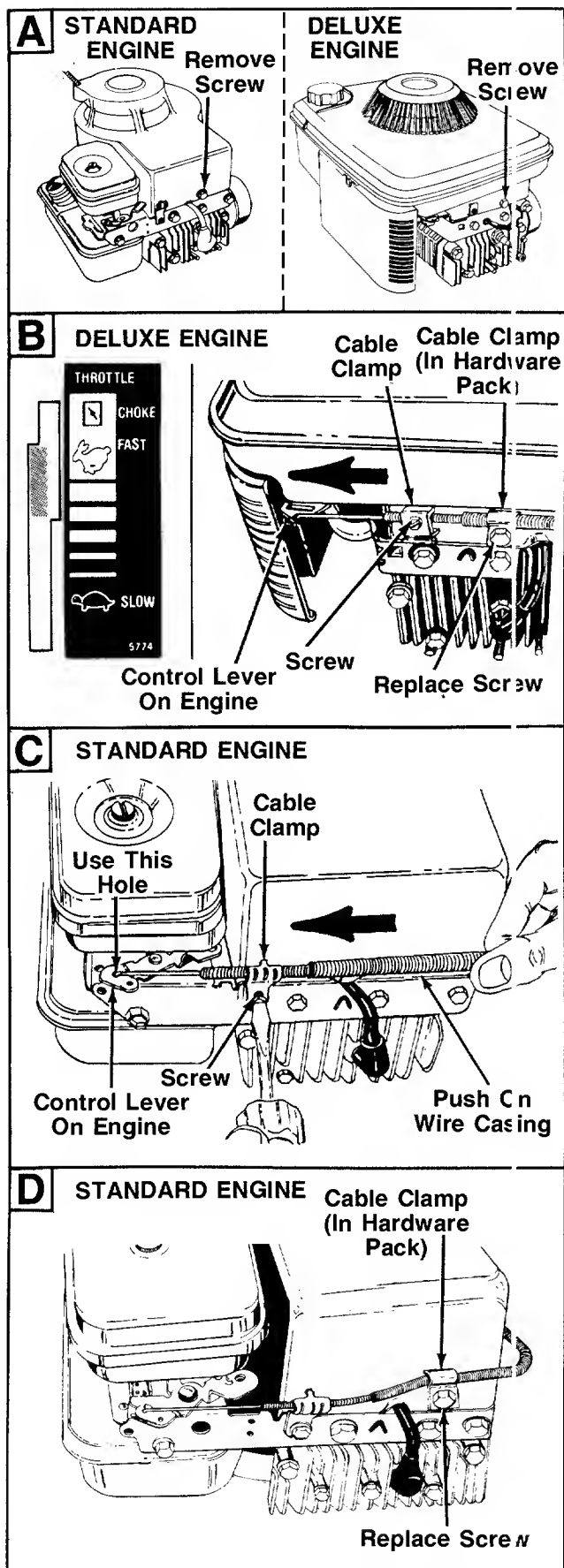


FIGURE 6.—Briggs and Stratton Engines

#### ATTACHING THE THROTTLE CABLE (Hardware C)

For Briggs and Stratton engines, compare the engine on your mower to the engines shown in figure 6A to determine if it is a standard or a deluxe. Follow the instructions which pertain to your unit. For Tecumseh engines, go to next page.

1. Using a 7/16" wrench, remove the screw on the engine shown in figure 6A.

2. Place the throttle control lever on the handle in FAST position.

#### NOTE

**Deluxe engine:** Move throttle control lever until it stops in FAST position (do not push all the way forward to CHOKE position). See figure 6B.

3. The throttle control cable is attached to the upper handle. Route the throttle control cable under the lower handle and inside the handle mounting bracket. Hook the "Z" end of the throttle control cable into the hole in the control lever on the engine.

#### NOTE

**Standard engine:** Hook the cable into the arm on the control lever on the engine which has two holes, using the outside hole as shown in figure 6C.

4. Remove the screw on the cable clamp on the engine shown in figure 6B (deluxe engine) or 6C (standard engine). Slip the control casing under the clamp. Replace the screw, but do not tighten (cable must still move freely beneath the clamp).

#### NOTE

**Deluxe engine:** The control casing goes under the clamp and above the screw as shown in figure 6B.

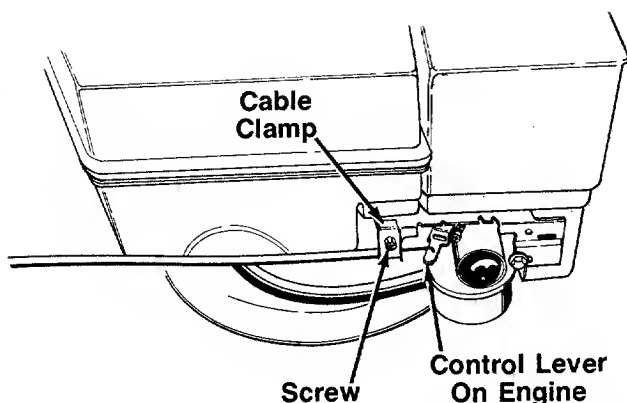
5. **Deluxe engine:** Slide the control lever on the engine as far toward the outside of the engine as it will go easily (just until resistance is felt) as shown in figure 6B. (Do not force it into the extreme outside position, which is the CHOKE position.) Tighten the screw to secure the throttle control cable in this position.

**Standard engine:** Place the control lever on the engine in the full open position by pushing it toward outside of the unit. Push the wire casing on the throttle control cable toward the control lever on the engine as shown in figure 6C as you tighten the screw on the cable clamp.

6. Loosen the screw on the clamp on the side of the engine. Secure the cable away from the muffler. Be careful not to bend or kink the cable. Tighten the screw.

7. Secure cable casing to the front of engine with cable clamp provided in hardware pack and screw removed from engine in step 1 as shown in figure 6B or 6D. Do not overtighten.

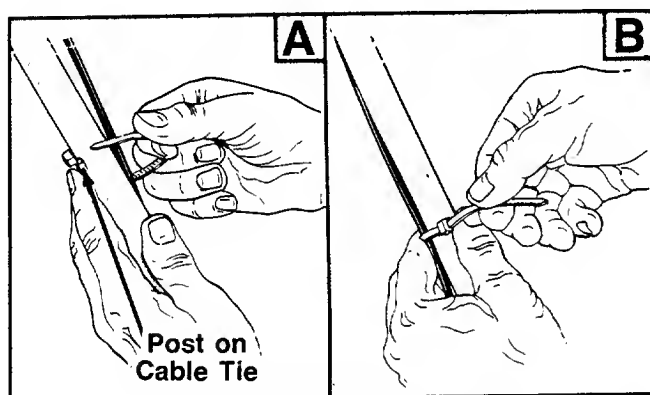




**FIGURE 7.—Tecumseh Engine**

### **ATTACHING THE THROTTLE CABLE (Tecumseh Engines)**

1. Place the throttle control lever on the handle in FAST position.
2. The throttle control cable is attached to the upper handle. Route the throttle control cable under the lower handle and inside the handle mounting bracket. Hook the "Z" end of the throttle control cable into the control lever on the engine as shown in figure 7.
3. Loosen (do not remove) the screw on the cable clamp shown in figure 7. Slip the control casing under the clamp (cable must move freely beneath the clamp).
4. Place the control lever on the engine in the full open position by pushing it as far toward the rear of the unit as it will go. Tighten the screw on the cable clamp to secure the cable in this position.

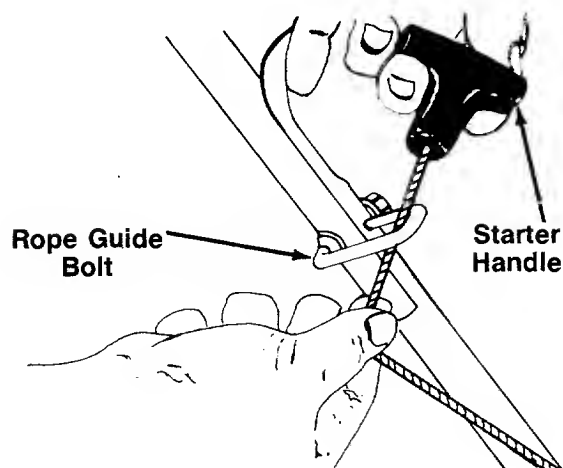


**FIGURE 8.**

### **SECURING THE CABLES (Hardware E)**

Secure all cables to the left side of the handle for model 312, or right side of the handle for model 311, as follows.

- A. Insert posts on cable ties into holes provided on the inside of the lower handle, one near the top and one near the bottom of lower handle. See figure 8A.
- B. Secure the cables with the cable ties. See figure 8B.
- C. Trim excess ends of cable ties.



**FIGURE 9.**

### **ATTACHING THE STARTER ROPE**

1. The starter rope is inside the top of the engine. Additional rope may be wound around the starter handle. If so, unwind the rope from the handle.
2. With the spark plug wire disconnected and grounded, depress the blade control handle and pull the rope out of the engine.
3. Slip the starter rope into the rope guide bolt as shown in figure 9.
4. Tighten the hex nut on the rope guide bolt securely.

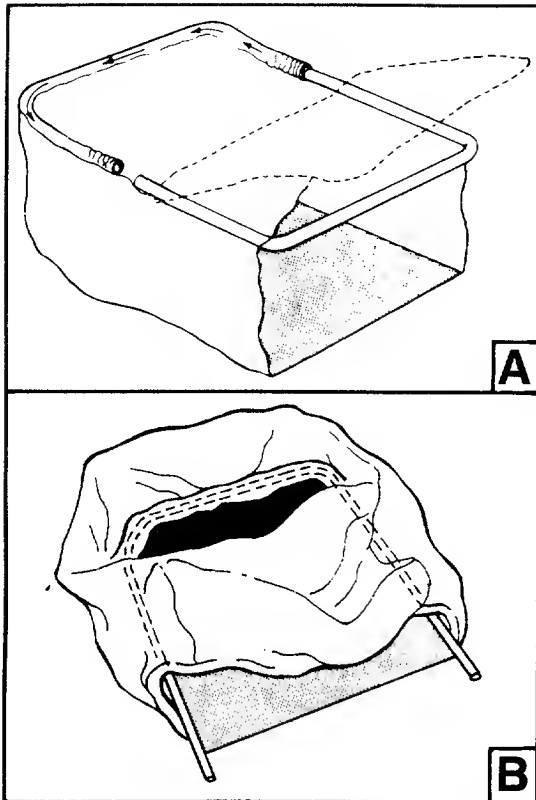


FIGURE 10.—Bag with Flip Top Opening

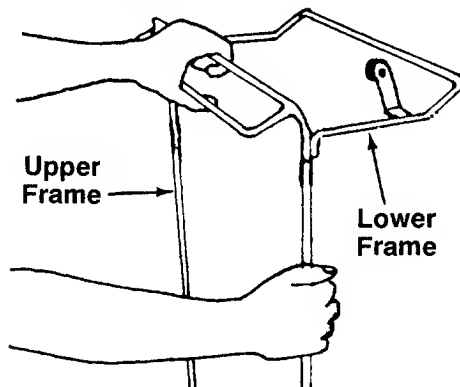


FIGURE 11.

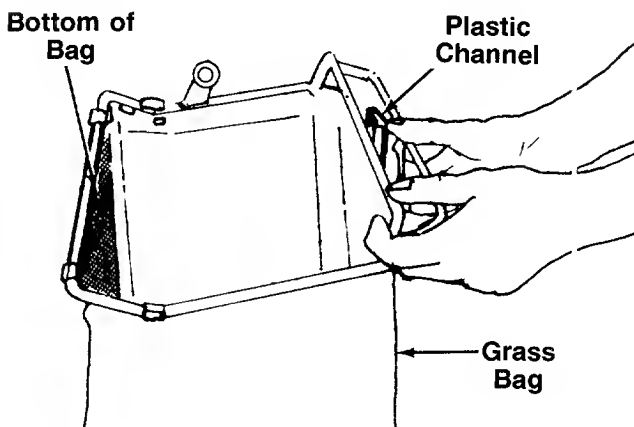


FIGURE 12.

#### FINAL ASSEMBLY OF MOWER (Hardware D)

1. If plastic plugs are not already assembled, insert plastic plugs into holes in the top rear of the deck by slipping one end of plug into hole, then pressing down on the other end of plug. Use a soft hammer if necessary.
2. Attach front hub caps (optional) to the wheels by lining up the four tabs on the hub caps with the four holes in the wheels. Push to lock in position.
3. Make certain **all** nuts and bolts are tightened securely.

#### ASSEMBLY OF GRASS CATCHER

There are two different types of grass bags, bags with and without flip top openings. Follow the instructions which pertain to your unit.

##### 1. Grass Bags with Flip Top Opening:

- a. Attach bag to rear frame by inserting one end of frame into pocket from inside bag. See figure 10A.
- b. Thread all material on one side of frame before working it around the frame.
- c. After threading, both ends of frame should be inside the bag. See figure 10B.

2. Join the upper frame and lower frame assembly as shown in figure 11.

3. Grass Bags without Flip Top Opening: Place bag over frame (black plastic side is the bottom of bag). Upper frame goes to the top of bag.

4. Secure bag to frame by slipping plastic channels on bag over frame. See figure 12.

5. Grass Bags with Flip Top Opening: Close top of bag by stretching loose material over the end of the frame.



**WARNING**

Never operate the mower with the bag open.

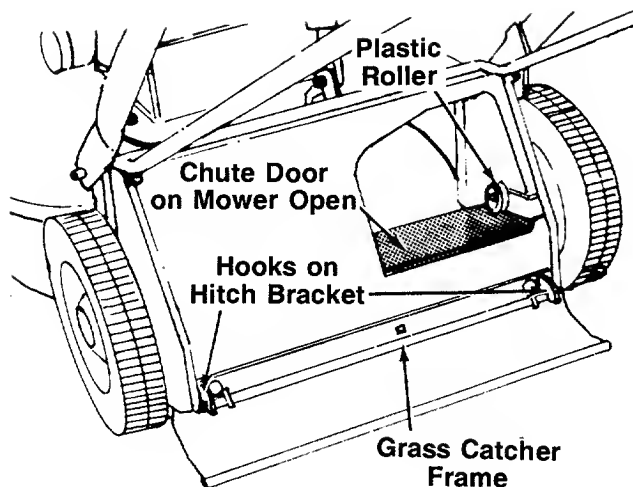


FIGURE 13.

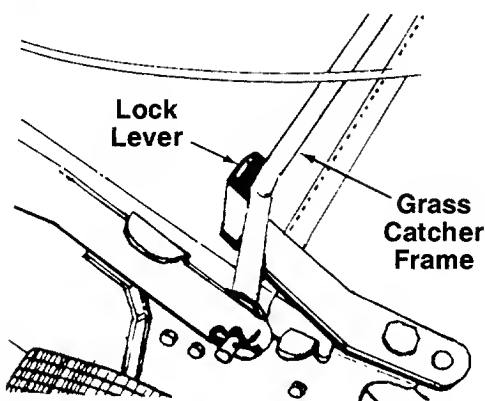


FIGURE 14.

## ATTACHING BAG TO MOWER



### WARNING

**DO NOT** operate the mower with the chute door open unless the complete grass catcher is properly mounted on the mower.

1. Attach the grass catcher frame to grass catcher hitch bracket on rear of the mower by hooking grass catcher into hooks on grass catcher hitch bracket. See figure 13.
2. Lift the rear of grass catcher up. The roller on the grass catcher will push the chute door on the mower open. See figure 13.



### NOTE

Figure 13 is shown with the chute door open for clarity only.

The grass catcher frame will snap into place, secured by the lock lever. See figure 14.

To remove the grass catcher, unhook the lock lever and slip the grass catcher off the unit. See figure 14.

## CONTROLS

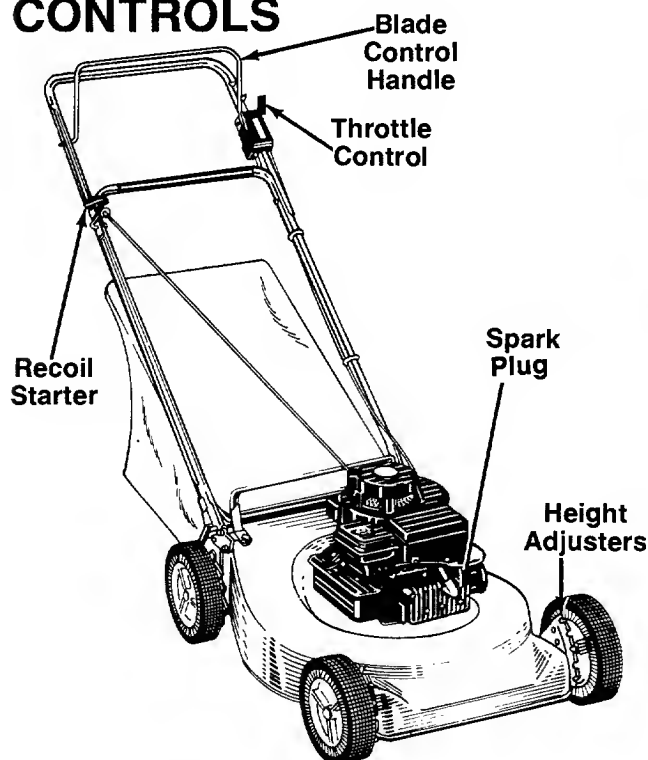


FIGURE 15.—Model 312 Shown

## BLADE CONTROL HANDLE

### WARNING

**THIS CONTROL MECHANISM IS A SAFETY DEVICE NEVER ATTEMPT TO BYPASS ITS OPERATIONS**

The blade control handle is located on the upper handle of the mower. See figure 15. The blade control handle must be depressed in order to operate the unit. Release the blade control handle to stop the engine and blade.



### WARNING

The blade will be rotating whenever the engine is running.

## THROTTLE CONTROL

The throttle control is located on the left side of the upper handle. It is used to regulate the engine speed.



### WARNING

The throttle control cannot be used to stop the engine.

## RECOIL STARTER

The recoil starter handle is attached to the handle. See figure 15. Stand behind the unit in the operating position to start the unit.

## OPERATION



FIGURE 16.

Keep hands and feet away from the chute area or cutting deck. See figure 16.

### NOTE

For shipping purposes your mower is set with the wheels in a low cutting height position. For best results raise the cutting position until it is determined which height is best for your lawn. See cutting height adjustment section.

## GAS AND OIL FILL-UP

Service the engine with gasoline and oil as instructed in the separate engine manual packed with your mower. Read instructions carefully.



### WARNING

Never fill fuel tank indoors, with engine running or until the engine has been allowed to cool for at least two minutes after running.

## TO START ENGINE AND ENGAGE BLADE

1. Attach spark plug wire to spark plug.
2. **Deluxe Briggs and Stratton engines:** Open fuel shut-off valve. See figure 17.

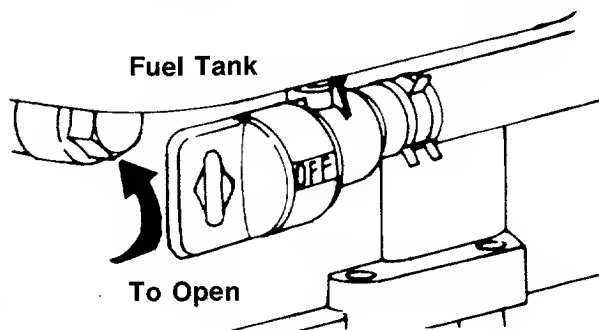


FIGURE 17.

3. Move the throttle control lever to FAST or START position.

### NOTE

On units with deluxe Briggs and Stratton engines, move throttle control lever to CHOKE position.

4. Model 311 Only: Prime engine as instructed in the separate engine manual packed with your unit.
5. Standing behind the unit, depress the blade control handle and hold it against the upper handle as shown. See figure 18.
6. Grasp the recoil starter handle and pull back rapidly, extending rope fully. Return it slowly to the rope guide bolt.
7. After engine starts, move throttle control to desired engine speed.

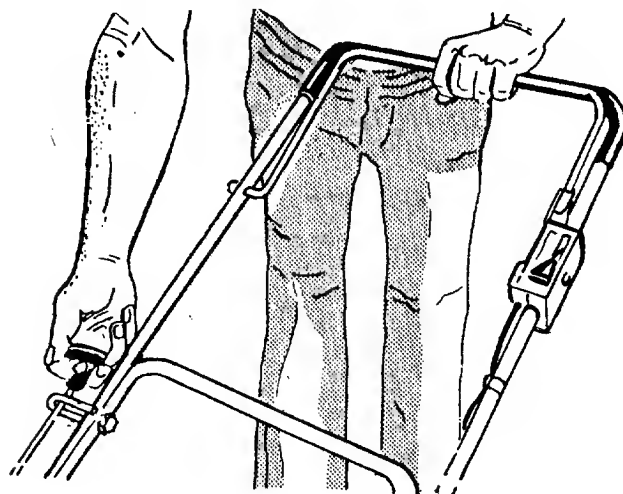


FIGURE 18.

## → NOTE

If any problems are encountered, refer to the Trouble Shooting Chart on page 17.

### TO STOP ENGINE AND BLADE

1. Release the blade control handle to stop the engine and blade.



The blade continues to rotate for a few seconds after the engine is shut off.

2. Disconnect the spark plug wire and ground it against the engine to prevent accidental starting while equipment is unattended.

### USING YOUR ROTARY MOWER



**DO NOT** operate the mower with the chute door open unless the complete grass catcher is properly mounted on the mower.

Be sure that lawn is clear of stones, sticks, wire, or other objects which could damage lawn mower or engine. Such objects could be accidentally thrown by the mower in any direction and cause serious personal injury to the operator and others.

Operate a new engine at intermediate speeds and light load for the first few hours as you would a new automotive engine.

For the best results, do not cut wet grass because it tends to stick to the underside of the mower, preventing proper discharge of grass clippings, and could cause you to slip and fall. New grass, thick grass or wet grass may require a narrower cut. Blade speed should be adjusted to the condition of the lawn.

For best results, cut off one-third or less of the total length of the grass. Lawn should be cut in the fall as long as there is growth.

This mower is designed to be operated at full throttle to give you the best cut and do the most effective job of bagging the cut grass.

## → IMPORTANT

If you strike a foreign object, stop the engine. Remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower. Extensive vibration of the mower during operation is an indication of damage. The unit should be promptly inspected and repaired.

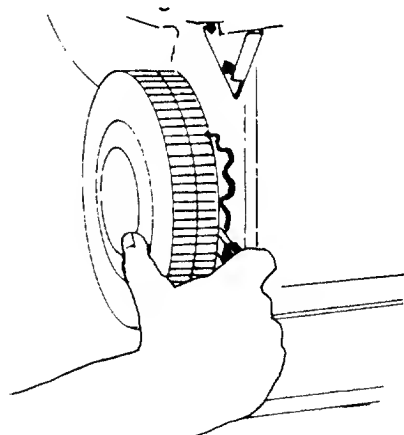
## ADJUSTMENTS



Do not at any time make any adjustment to lawn mower without first stopping engine and disconnecting spark plug wire.

### CUTTING HEIGHT ADJUSTMENT

An adjusting plate and thumb lever at each wheel position provides cutting height adjustment. Each adjusting plate has nine height positions. Height of cut will be changed when the thumb lever is moved from one hole to another. Simply depress the lever towards wheel and move wheel and lever assembly to desired position. See figure 19.



**FIGURE 19.**

Cutting height will be raised as front levers are moved to the front, and rear levers are lowered. Cutting height will be lowered as front levers are moved to the rear, and rear levers are raised. All wheels must be placed in the same relative position.

For rough or uneven lawns, move the wheels to a position which will give a higher cutting height.

## THROTTLE

The throttle control wire assembly can be adjusted if necessary. Loosen the screw on the cable clamp closest to the control lever on engine. Adjust as instructed in step 5 (Briggs and Stratton Engines) or step 4 (Tecumseh Engines) of "Attaching the Throttle Control Cable" in Assembly Instructions.

## CARBURETOR ADJUSTMENTS



If any adjustments are made to the engine while the engine is running (e.g. carburetor), keep clear of all moving parts. Be careful of heated surfaces and muffler.

**Minor carburetor adjustments may be required to compensate for differences in fuel, temperature, altitude and load.** To adjust carburetor, refer to the separate engine manual packed with your mower.

### ➡ NOTE

A dirty air cleaner will cause an engine to run rough. Be certain air cleaner is clean and attached to the carburetor before adjusting carburetor. Refer to the separate engine manual.

## LUBRICATION



Always stop engine and disconnect spark plug wire before cleaning, lubricating or doing any kind of work on lawn mower.

**Blade Control**—Lubricate the pivot points on the blade control handle and the brake cable at least once a season with light oil. See figure 20. The blade control must operate freely in both directions.

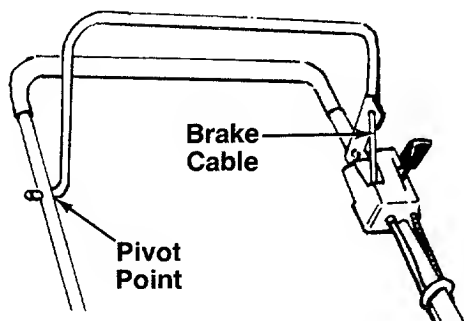


FIGURE 20.

**Discharge Chute Door Mechanism**—The torsion spring and pivot point should be lubricated periodically with light oil to prevent any rust or binding. Door must work freely.

**Wheels**—Mower may be provided with ball bearing wheels. Lubricate at least once a season with light oil. Also, if the wheels are removed for any reason, lubricate the surface of the axle bolt and the inner surface of the wheel with light oil. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.

**Engine**—Follow engine manual for lubrication instructions.

**Throttle**—Periodically lubricate throttle control lever and throttle wire assembly with a few drops of light oil for ease of operation.

## MAINTENANCE

### ➡ NOTE

When tipping the unit, empty the fuel tank and keep engine spark plug side up.

## TROUBLE SHOOTING

Refer to page 17 of this manual for trouble shooting information.

## CUTTING BLADE

### A. Removal for Sharpening or Replacement



Be sure to disconnect and ground the spark plug wire before working on the cutting blade to prevent accidental engine starting. Protect hands by using heavy gloves or a rag to grasp the cutting blade.

Remove the large bolt and lock washer which holds the blade and adapter to the engine crankshaft. Remove the blade and adapter from the crankshaft.

If the blade or blade adapter needs replacing, remove the two small bolts, lock washers and nuts which hold the blade to the adapter.



Periodically inspect the blade adapter for cracks, especially if you strike a foreign object. Replace when necessary.

## B. Sharpening

Remove the cutting blade by following the directions of the preceding section.

When sharpening the blade, follow the original angle of grind as a guide. It is **extremely important** that each cutting edge receives an equal amount of grinding to prevent an unbalanced blade. An unbalanced blade will cause excessive vibration when rotating at high speeds, may cause damage to the mower and could break, causing personal injury.

It is recommended that the blade always be removed from the adapter for the best test of balance. The blade can be tested by balancing it on a round shaft screwdriver. Remove metal from the heavy side until it balances evenly.

## C. Reassembly

Before reassembling the blade and the blade adapter to the unit, lubricate the engine crankshaft and the inner surface of the blade adapter with light oil. Lubricating the bolt holes, bolts and inner surface of the nuts with light oil is also recommended. A 4 oz. plastic bottle of light oil lubricant is available. Order part number 737-0170. Engine oil may also be used.

When replacing the blade, be sure to install the blade with the side of the blade marked "Bottom" (or with part number) facing the ground when the mower is in the operating position.

### Blade Mounting Torque

3/8" Dia. Bolt 375 in. lb. min., 450 in. lb. max.

5/16" Dia. Bolt 150 in. lb. min., 250 in. lb. max.

To insure safe operation of your unit, **all** nuts and bolts must be checked periodically for correct tightness.

## DECK

The underside of mower deck should be cleaned after each period of use as grass clippings, leaves, dirt and other matter will accumulate. This accumulation of grass clippings, etc., is undesirable as it will invite rust and corrosion and may cause an uneven discharge of grass clippings at the next cutting.

The deck may be cleaned by tilting the mower forward or on its side and scraping clean with a suitable tool or by washing with a stream of water from a garden hose.



### NOTE

Do not direct the stream of water at a hot engine as damage to the engine may result.

## ENGINE

**Refer to the separate engine manual for all engine maintenance instructions.**

Maintain **engine oil** as instructed in the separate engine manual packed with your unit. Read and follow instructions carefully.

Service **air cleaner** every 25 hours under normal conditions. Clean every few hours under extremely dusty conditions. Poor engine performance and flooding usually indicates that the air cleaner should be serviced. To service the air cleaner, refer to the separate engine manual packed with your unit.

The **spark plug** should be cleaned and the gap reset once a season. Spark plug replacement is recommended at the start of each mowing season; check engine manual for correct plug type and gap specifications.

# OFF-SEASON STORAGE

The following steps should be taken to prepare lawn mower for storage.

1. Clean and lubricate mower thoroughly as described in the lubrication instructions.
2. Refer to engine manual for correct engine storage instructions.
3. Coat mower's cutting blade with chassis grease to prevent rusting.
4. Store mower in a dry, clean area.



### NOTE

When storing any type of power equipment in an unventilated or metal storage shed, care should be taken to rustproof the equipment. Using a light oil or silicone, coat the equipment, especially cables and all moving parts.

# HANDLE STORAGE

The handle may be placed in an upright position for storage.

Move hairpin clips to outer hole on weld pins. See figure 1. Press outward on the bottom of the lower handle and push forward. The handle will lock in this position.

To place the handle in the operating position, remove the starter rope from the rope guide bolt. Grasp the lower handle at the bottom, pull apart slightly and tip the handle backward. Place the hairpin clips in the inner holes. With the spark plug wire disconnected and grounded, depress the blade control handle and pull the starter rope out from the engine. Slip the starter rope into the rope guide bolt.

➡ **NOTE**

The use of any accessory on this Rotary Mower other than those manufactured by the mower manufacturer is **not** recommended.

GRASS CATCHER Model 028 is available as replacement equipment for the mower shown in this manual.



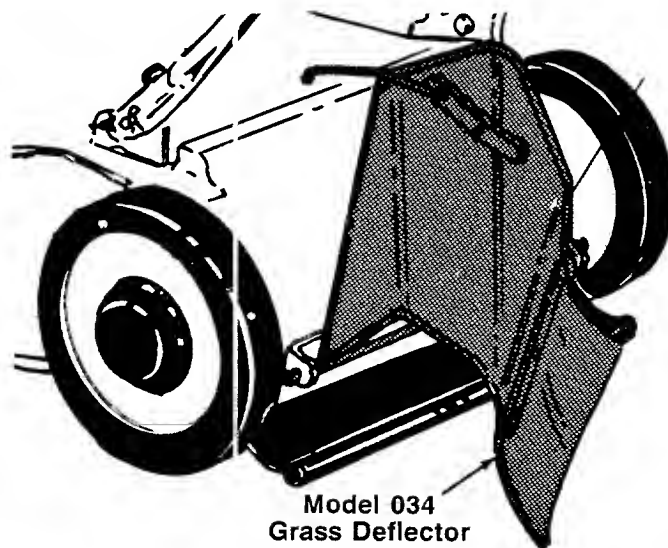
**WARNING**

1. DO NOT operate the mower with the chute door open unless the complete grass catcher is properly mounted on the mower.
2. DO NOT operate the mower without the protective shield on the rear of the deck in place.

➡ **NOTE**

Under normal usage bag material is subject to wear and should be checked periodically. Be sure any replacement bag complies with the mower manufacturer's recommendations.

For replacement bags, use only factory authorized replacement bag No. 764-0171 (without Flip Top) or 764-0170 (with Flip Top).



Grass Deflector model 19C-034-000 is available as optional equipment.



## Trouble Shooting Chart

Symptom	Possible Causes	Corrective Action
1 Engine fails to start	<b>A</b> Blade control handle disengaged <b>B</b> Check fuel tank for fuel <b>C</b> Fuel shut-off valve closed (on units so equipped). <b>D</b> Spark plug lead wire disconnected. <b>E</b> Throttle control lever not in the starting position <b>F</b> Faulty spark plug <b>G</b> Carburetor improperly adjusted, engine flooded  <b>H</b> Old stale fuel <b>I</b> Engine brake engaged	<b>A</b> Engage blade control handle.  <b>B</b> Fill tank if empty. <b>C</b> Open fuel shut-off valve.  <b>D</b> Connect lead wire.  <b>E</b> Move throttle lever to start position. <b>F</b> Clean, adjust gap or replace.† <b>G</b> Remove spark plug, dry the plug, crank engine with plug removed, and throttle in off position. Replace spark plug and lead wire and resume starting procedures. <b>H</b> Drain and refill with fresh fuel. <b>I</b> Follow starting procedure.
2 Hard starting or loss of power	<b>A</b> Spark plug wire loose <b>B</b> Carburetor improperly adjusted <b>C</b> Dirty air cleaner	<b>A</b> Connect and tighten spark plug wire. <b>B</b> Adjust carburetor.† <b>C</b> Clean air cleaner.†
3 Operation erratic	<b>A</b> Dirt in fuel tank <b>B</b> Dirty air cleaner <b>C</b> Water in fuel supply  <b>D</b> Vent in gas cap plugged <b>E</b> Carburetor improperly adjusted	<b>A</b> Remove the dirt and fill tank with fresh fuel. <b>B</b> Clean air cleaner.† <b>C</b> Drain contaminated fuel and fill tank with fresh fuel. <b>D</b> Clear vent or replace gas cap. <b>E</b> Adjust carburetor.†
4 Occasional skip (hesitates) at high speed	<b>A</b> Carburetor idle speed too slow <b>B</b> Spark plug gap too close <b>C</b> Carburetor idle mixture adjustment improperly set	<b>A</b> Adjust carburetor.†  <b>B</b> Adjust to .030". <b>C</b> Adjust carburetor.†
5 Idles poorly	<b>A</b> Spark plug fouled, faulty, or gap too wide <b>B</b> Carburetor improperly adjusted <b>C</b> Dirty air cleaner	<b>A</b> Reset gap to .030" or replace spark plug. <b>B</b> Adjust carburetor.†  <b>C</b> Clean air cleaner.†
6 Engine overheats	<b>A</b> Carburetor not adjusted properly <b>B</b> Air flow restricted  <b>C</b> Engine oil level low (Model 312) or insufficient oil in fuel mixture (Model 311)	<b>A</b> Adjust carburetor.†  <b>B</b> Remove blower housing and clean.† <b>C</b> Fill crankcase with the proper oil or fuel mixture.
7 Excessive vibration	<b>A</b> Cutting blade loose or unbalanced <b>B</b> Bent cutting blade	<b>A</b> Tighten blade and adapter. Balance blade. <b>B</b> Replace blade.

†Refer to separate engine manual packed with your unit.

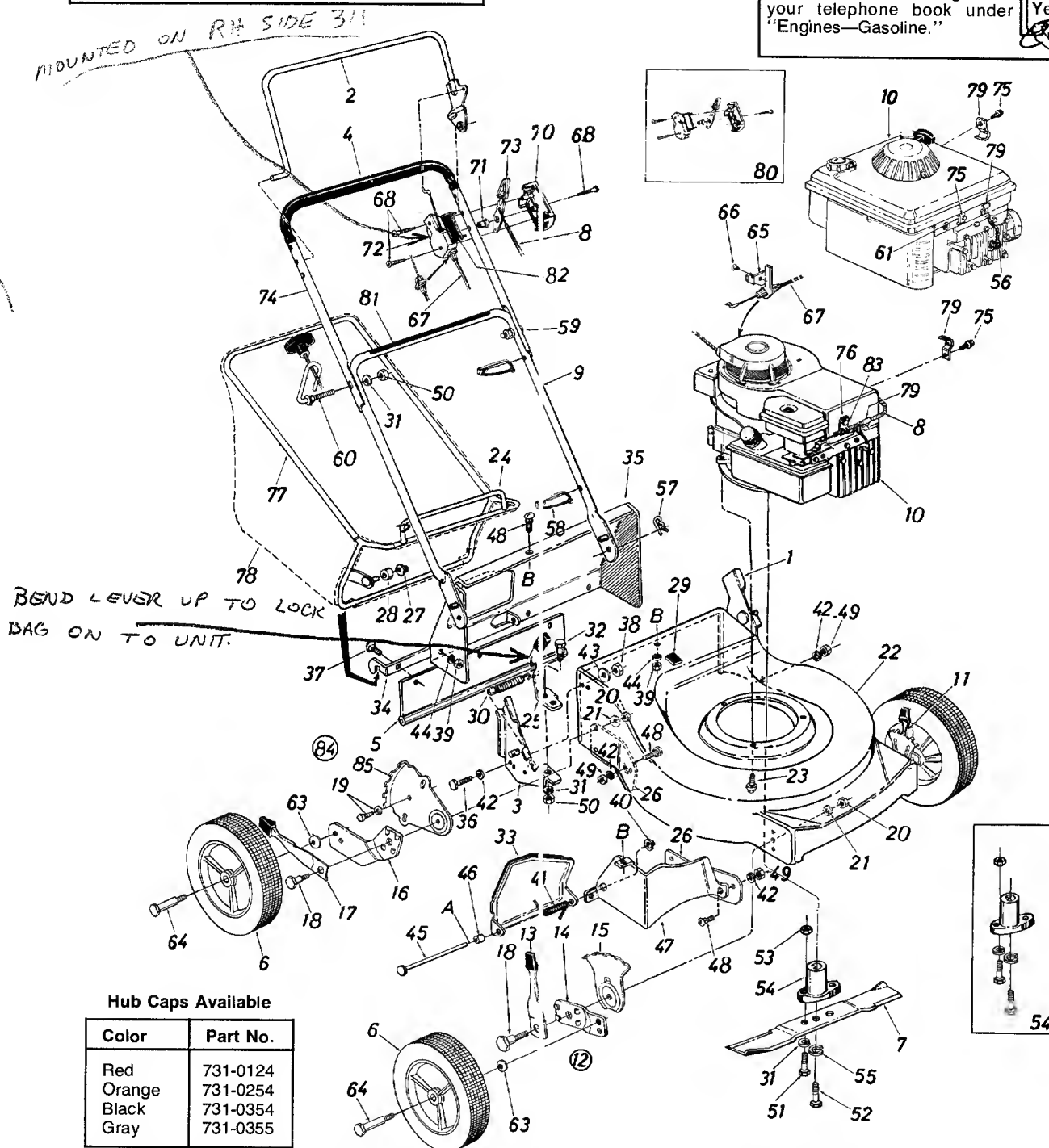
**Note:** For repairs beyond the minor adjustments listed above, contact your local authorized service dealer.

# Models 311 and 312

**Model 311—Throttle Control Housing is Mounted on the Right Side of Handle**

NOTE: The engine is not under warranty by the mower manufacturer. . . If repairs or service is needed on the engine, please contact your nearest authorized engine service outlet. Check the "Yellow Pages" of your telephone book under "Engines—Gasoline."

Find It Fast  
In The  
Yellow Pages



## Hub Caps Available

Color	Part No.
Red	731-0124
Orange	731-0254
Black	731-0354
Gray	731-0355

\*For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

If color or finish is important when ordering parts, use the appropriate color code shown below [i.e. (part no.)-463 for Topflite Red Finish].

## Color Codes

312—White  
436—Radiant Yellow  
447—Patina Silver  
452—Black  
456—Radiant Tangerine  
460—Green Flake

463—Topflite Red  
480—Brilliant Green  
483—Charcoal Grey  
499—Beige  
606—Majestic Orange  
629—Silver Flake



## NOTE

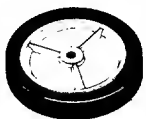

This instruction manual covers various models, and all specifications shown do not necessarily apply to your model. Specifications subject to change without notice or obligation.

# Models 311 and 312

## PARTS LIST FOR MODELS 311 AND 312 ROTARY MOWER

REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART	REF. NO.	PART NO.	COLOR CODE	DESCRIPTION	NEW PART
1	12297		Handle Brkt. Ass'y.—L.H.		45	738-0386		Hinge Pin	
2	14321		Control Handle Ass'y. (312)		46	750-0218		Spacer .262" I.D. x .58" Lg.	
	14320		Control Handle Ass'y. (311)		47	16259		Rear Baffle	
3	14592		Handle Brkt. Ass'y.—R.H.		48	710-0167		Carriage Bolt 1/4-20 x .50" *	
4	718-0145		Grip		49	712-0287		Hex Nut 1/4-20 Thd. *	
5	731-0665		Rear Flap Ass'y.		50	712-0267		Hex Nut 5/16-18 Thd. *	
6	**		Wheel Ass'y.		51	710-0888		Hex Bolt 5/16-24 x 1.00" Lg. (Grade 5)	
7	742-0124		21" Blade						
8	746-0633		Throttle Wire—58" (312)		52	710-0331		Hex Bolt 3/8-24 x 2.25" Lg. (Grade 5)	
	746-0634	0640	Throttle Wire—43" (311)	45					
9	749-0505		Lower Handle		53	712-0123		Hex Nut 5/16-24 Thd. *	
10	—		Engine		54	753-0348		Blade Adapter Kit	
11	14579		Front L.H. Height Adj. Ass'y.		55	736-0217		L-Wash. 3/8" I.D.—H.D.	
12	14578		Front R.H. Height Adj. Ass'y.		56	735-0639		Spark Plug Boot†	
13	14832		Spring Lever Ass'y. w/Knob		57	714-0104		Intern. Cot. Pin 5/16" Dia.	
14	15262		Front Pivot Bar		58	726-0240		Cable Tie	N
15	15261		Front Index Plate		59	710-0671		Curved Carriage Bolt 5/16-18 x 1.38" Lg.	
16	14765		Rear Pivot Bar—R.H.		60	710-0842		Rope Guide Bolt	
	14766		Rear Pivot Bar—L.H. (Not Shown)		61	751-0442		Casing Clamp†	
17	732-0417		Spring Lever w/Knob		63	736-0105		Bell-Wash. .400" I.D. x .88" O.D. x .060	
18	738-0507		Shld. Bolt .50" Dia. x .375		64	738-0102		Axle Bolt	
19	710-0892		Hex Wash. Hd. Tap Scr. 1/4 x .62" Lg.		65	14924		Cable Bracket†	
20	712-0798		Hex Nut 3/8-16 Thd. *		66	728-0171		Pop Rivet†	
21	736-0356		Bell-Wash. .39" I.D. x .38"		67	746-0477†		Brake Control Cable 43"	
22	16241	463	20" Deck Ass'y.		68	710-0796		Truss Mach. Hd. "B" Tap Scr. #12 x 1.50" Lg.	
23	710-0654		Self-Tap Screw 3/8-16 x .88"		70	731-0523		Control Panel Half	
24	14582		Catcher Lower Frame Ass'y.		71	731-0524		Control Disc Pin	
25	14845		Lock Lever w/Knob		72	731-0526		Clutch Panel Half	
26	16366		Baffle		73	731-0528		Throttle Control Lever	
27	726-0100		Push Nut 3/8" Rod		74	749-0436		Upper Handle	
28	731-0430		Plastic Roller		75	710-0429		Hex B-Tap Scr. #10 x .38"†	
29	731-0564		Plastic Plug		76	751-0369		Casing Clamp†	
30	732-0357		Tension Spring		77	749-0278		Catcher Upper Frame	
31	736-0119		L-Wash. 5/16" I.D. *		78	764-0171		Grass Bag (Without Flip Top)	
32	738-0155		Shld. Bolt .437" Dia. x .162			764-0170		Grass Bag (With Flip Top)	
33	13407		Chute Door		79	12894		Casing Clamp†	
34	14012		Grass Catcher Hitch Brkt.		80	753-0430		Control Housing Comp.	N
35	16258	463	Rear Deck Section		81	777-5776		Instruction Label—Handle	
36	710-0412		Hex Bolt 1/4-28 x .75" Lg. *		82	777-5773		Control Label—Throttle	
37	710-0703		Carr. Bolt 1/4-20 x .75" Lg. *		83	710-0227		Hex Wash. Hd. AB-Tap Scr. #8 x .38" Lg.†	
38	712-0138		Hex Nut 1/4-28 Thd. *		84	16106		Rear Height Adj. Ass'y.—R.H.	
39	712-0271		Sems Nut 1/4-20 Thd. *			16107		Rear Height Adj. Ass'y.—L.H.	
40	726-0106		Push Nut 1/4" Rod		85	14764		Rear Index Plate	
41	732-0346		Torsion Spring		—	8312-000-7		Hardware Pack	
42	736-0329		L-Wash. 1/4" I.D. *						
43	736-0270		Bell-Wash. 1/4" I.D. x .88"						
44	736-0211		Fl-Wash. .285" I.D. x 1.25"						

\*\*WHEEL CHART—8 x 1.75

Plastic Rim		Steel Rim			
		Twinline Tread	Waffle Tread	Smooth	Bearings
		734-0661	734-0812	734-0843	1/2" I.D. Plastic Brg.—741-0262 (2 per Wheel)
		734-0643	734-0645	734-0845	Ball Brgs. 3/8" I.D.—741-0267, 1/2" I.D.—741-0484, Spacer—750-0434 (Use Axle Bolt 710-0427)
734-0841	734-1162				

†Optional Parts

# PARTS INFORMATION

## POWER EQUIPMENT PARTS AND SERVICE

Parts and service are available through the authorized service firms listed below. All orders should specify the model number of your unit, part numbers, description of parts and the quantity of each part required.

**NOTE:** If any parts are found to be missing or defective upon assembly of this unit, write to advise the factory so that immediate replacement can be made.

<b>ALABAMA</b>	<b>BIRMINGHAM</b>
Auto Electric & Carburetor Co. . . . .	2625 4th Ave. S. . . . . 5233
<b>ARKANSAS</b>	<b>NORTH LITTLE ROCK</b>
Sutton's Lawn Mower Shop. . . . .	5301 Roundtop Drive
	Box 368, Rt. 4 . . . . . 2117
<b>CALIFORNIA</b>	<b>PORTERVILLE</b>
Billious . . . . .	75 North D Street . . . . . 93257
<b>COLORADO</b>	<b>DENVER</b>
Spitzer Industrial Products Co. . . . .	6601 N.
	Washington St. . . . . 10229
<b>FLORIDA</b>	<b>JACKSONVILLE</b>
Radco Distributors . . . . .	4909 Victor St.
	Box 5459 . . . . . 12207
	<b>HIALEAH</b>
Small Eng. Dist. . . . .	7995 W. 26th Court . . . . . 13016
<b>GEORGIA</b>	<b>EAST POINT</b>
East Point Cycle & Key Inc. . . . .	2834 Church St. . . . . 10344
<b>ILLINOIS</b>	<b>LYONS</b>
Keen Edge Co. . . . .	8615 Ogden Ave. . . . . 10534
<b>INDIANA</b>	<b>ELKHART</b>
Parts & Sales Inc. . . . .	2101 Industrial Pkwy. . . . . 16516
<b>IOWA</b>	<b>DUBUQUE</b>
Power Lawn & Garden Equip. . . . .	2551 J.F. Kennedy. . . . . 12001
<b>LOUISIANA</b>	<b>NEW ORLEANS</b>
Suhren Engine Co. . . . .	8330 Earhart Blvd. . . . . 70118
<b>MARYLAND</b>	<b>TAKOMA PARK</b>
Center Supply Co. . . . .	6867 New Hampshire
	Ave. . . . . 20912
<b>MASSACHUSETTS</b>	<b>SPRINGFIELD</b>
Morton B. Collins Co. . . . .	300 Birnie Ave. . . . . 11107
<b>MICHIGAN</b>	<b>LANSING</b>
Lorenz Service Co. . . . .	2500 S. Pennsylvania . . . . . 48910
	<b>MOUNT CLEMENS</b>
Power Equipment Dist. . . . .	340 Hubbard . . . . . 48043
<b>MINNESOTA</b>	<b>HOPKINS</b>
Hance Distributing Inc. . . . .	420 Excelsior Ave. W. . . . . 55343
<b>MISSOURI</b>	<b>EARTH CITY</b>
Oscar Wilson Engine & Parts . . . . .	4159 Shoreline Dr. . . . . 63045
	<b>KANSAS CITY</b>
Automotive Equip. Service . . . . .	3117 Holmes St. . . . . 64109
Ross-Frazer Supply Co. . . . .	8th and Monterey. . . . . 64503
	<b>ST. JOSEPH</b>
Henzler, Inc. . . . .	2015 Lemay Ferry Rd. . . . . 63125
<b>NEW JERSEY</b>	<b>ALLOWAY</b>
Piersons . . . . .	Canal St. . . . . 08001
<b>NEW MEXICO</b>	<b>ALBUQUERQUE</b>
Spitzer Eng. & Parts Co. . . . .	1023 Third Ave. N.W. . . . . 37103

## BRIGGS AND STRATTON, TECUMSEH AND PEERLESS PARTS AND SERVICE

Briggs & Stratton, Tecumseh and Peerless parts and service should be handled by your nearest authorized engine service firm. Check the yellow pages of your telephone directory under the listing **Engines—Gasolin** Briggs & Stratton or Tecumseh Lauson.

<b>NEW YORK</b>	<b>CARTHAGE</b>
Gamble Dist., Inc. . . . .	West End Ave. . . . . 13619
<b>NORTH CAROLINA</b>	<b>GREENSBORO</b>
Dixie Sales Company . . . . .	335 N. Green . . . . . 27402
<b>OHIO</b>	<b>CARROLL</b>
Stebe's Mid-State Mower Supply . . . . .	Box 366, 71 High St. . . . . 43112
	<b>CLEVELAND</b>
Bleckrie, Inc. . . . .	7900 Lorain Ave. . . . . 44102
National Central . . . . .	<b>WADSWORTH</b>
	687 Seville Rd. . . . . 44281
Burton Supply Co. . . . .	<b>YOUNGSTOWN</b>
	1301 Logan Ave.
	Box 929 . . . . . 44501
<b>OREGON</b>	<b>PORTLAND</b>
Kenton Supply Co. . . . .	8216 N. Denver Ave. . . . . 97217
<b>PENNSYLVANIA</b>	<b>HARRISBURG</b>
EECO Inc. . . . .	4021 N. 6th St. . . . . 17110
Thompson Rubber Co. . . . .	<b>WILLOW GROVE</b>
	850 Davisville Rd. . . . . 19090
Bluemont Co. . . . .	<b>PITTSBURGH</b>
	11125 Frankstown Rd. . . . . 15235
Frank Roberts & Sons . . . . .	<b>PUNXSUTAWNEY</b>
	R.D. 2 . . . . . 15767
Scranton Auto Ignition Co. . . . .	<b>SCRANTON</b>
	1133-35 Wyoming Ave. . . . . 18509
<b>TENNESSEE</b>	<b>KNOXVILLE</b>
Ace Distributors . . . . .	2103 Magnolia . . . . . 37910
	<b>MEMPHIS</b>
American Sales & Service, Inc. . . . .	3035-43 Bellbrook . . . . . 381
<b>TEXAS</b>	<b>DALLAS</b>
Marr Brothers, Inc. . . . .	423 E. Jefferson. . . . . 75203
Woodson Sales Corp. . . . .	<b>FORT WORTH</b>
	6733 Baker Blvd.
	Hwy. 10 . . . . . 76118
Engine House Inc. . . . .	<b>SAN ANTONIO</b>
	8610 Botts Lane
	P.O. Box 17867 . . . . . 78217
<b>UTAH</b>	<b>SALT LAKE CITY</b>
Powered Products . . . . .	1661 N. Beck St. . . . . 84116
<b>VIRGINIA</b>	<b>ASHLAND</b>
RBI Corp. . . . .	101 Cedar Ridge Dr. . . . . 23005
<b>WASHINGTON</b>	<b>SEATTLE</b>
Equip. Northwest . . . . .	1410 14th Ave. . . . . 98122
<b>WISCONSIN</b>	<b>MILWAUKEE</b>
Wisconsin Magneto Inc. . . . .	4727 N. Teutonia St. . . . . 53209

## WARRANTY PARTS AND SERVICE POLICY

(0686)

The purpose of warranty is to protect the customer from defects in workmanship and materials, defects which are NOT detected at the time of manufacture. It does not provide for the unlimited and unrestricted replacement of parts. Use and maintenance are the responsibility of the customer. The manufacturer cannot assume responsibility for conditions over which it has not control. Simply put, if it's the manufacturer's fault, it's the manufacturer's responsibility; if it's the customer's fault, it's the customer's responsibility.

### CLAIMS AGAINST THE MANUFACTURER'S WARRANTY INCLUDES:

1. Replacement of Missing Parts on new equipment.
2. Replacement of Defective Parts within the warranty period.
3. Repair of Defects within the warranty period.

All claims MUST be substantiated with the following information:

1. Model Number, Serial Number and/or Data Code of unit involved.
2. Date unit was purchased or first put into service.
3. Date of Failure.
4. Nature of Failure.